

What is claimed is:

1. A flow sensor comprising:
 - a flexible membrane; and
 - a plurality of sensors, at least one of the plurality of sensors being operatively connected to the flexible membrane, at least one of the plurality of sensors being adapted for detecting ambient temperature, at least one of the plurality of sensors being adapted for detecting pressure of the medium, and at least one of the plurality of sensors being adapted for detecting a flow rate of the medium.
2. The flow sensor as defined by Claim 1, wherein the medium includes at least one of a gas, liquid, composition, and slurry.
3. The flow sensor as defined by Claim 1, further comprising:
 - a wafer, the wafer including a cavity; and
 - a substrate, the wafer being bonded to the substrate, the cavity in the wafer being substantially covered by the substrate, at least a portion of the wafer disposed above the cavity including the flexible membrane.
4. The flow sensor as defined by Claim 3, wherein at least one of the wafer and the substrate includes silicon.
5. The flow sensor as defined by Claim 1, further comprising an isolation layer, the isolation layer being disposed between the at least one of the plurality of sensors and the flexible membrane.
6. The flow sensor as defined by Claim 5, wherein the isolation layer includes silicon dioxide.
7. The flow sensor as defined by Claim 1, wherein the plurality of sensors includes at least one resistor.

8. The flow sensor as defined by Claim 1, wherein the plurality of sensors includes at least four resistors, the at least four resistors being operatively connected in a Wheatstone bridge configuration.
9. The flow sensor as defined by Claim 1, wherein the at least one sensor adapted for detecting pressure is adapted for detecting deflection of the flexible membrane in response to the pressure of the medium.
10. The flow sensor as defined by Claim 1, wherein the at least one sensor adapted for detecting ambient temperature is selectively isolated from the plurality of sensors.
11. The flow sensor as defined by Claim 1, wherein the at least one sensor adapted for detecting the flow rate of the medium includes a constant temperature anemometer.
12. The flow sensor as defined by Claim 1, wherein the plurality of sensors is operatively connected to the flexible membrane.
13. The flow sensor as defined by Claim 1, wherein the flow sensor is adapted for mounting within a conduit.
14. A method of sensing a flow rate of a medium, the method comprising the steps of:
 - providing a flexible membrane;
 - coupling at least one of a plurality of sensors operatively to the flexible membrane;
 - detecting ambient temperature by at least one of the plurality of sensors;
 - detecting a pressure of a medium by at least one of the plurality of sensors; and
 - detecting a flow rate of the medium by at least one of the plurality of sensors.

15. The method of sensing a flow rate of a medium as defined by Claim 14, wherein the medium includes at least one of a gas, liquid, composition, and slurry.

16. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the steps of:

providing a wafer, the wafer including a cavity;

providing a substrate; and

bonding the wafer to the substrate, the cavity in the wafer being substantially covered by the substrate, at least a portion of the wafer disposed above the cavity including the flexible membrane.

17. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the step of disposing an isolation layer between at least one of the plurality of sensors and the flexible membrane.

18. The method of sensing a flow rate of a medium as defined by Claim 14, wherein the plurality of sensors includes at least four resistors, the method further comprising the step of coupling the at least four resistors operatively in a Wheatstone bridge configuration.

19. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the step of detecting deflection of the flexible membrane by the at least one of the plurality of sensors detecting the pressure of the medium.

20. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the steps of:

isolating selectively the at least one sensor adapted for detecting ambient temperature from the plurality of sensors; and

determining a resistance of the at least one sensor adapted for detecting ambient temperature, the resistance being representative of the ambient temperature.

21. The method of sensing a flow rate of a medium as defined by Claim 14, wherein the step of detecting the flow rate of the medium by at least one of the plurality of sensors further comprises the steps of:

maintaining the at least one of the plurality of sensors detecting the flow rate of the medium at a predetermined temperature with a heating element; and

determining an electrical current through the heating element, the electrical current being representative of the flow rate of the medium.

22. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the step of coupling the plurality of sensors operatively to the flexible membrane.

23. The method of sensing a flow rate of a medium as defined by Claim 14, further comprising the step of compensating the flow rate detected by at least one of the plurality of sensors with at least one of the ambient temperature and the pressure of the medium.